

Public Health Fact Sheet

Hantavirus

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What is hantavirus?

Hantaviruses are a family of several viruses found in rodents. These viruses have caused serious health problems in other parts of the world (mainly the Far East, Scandinavia, and Eastern Europe). The virus causing the recent U.S. cases is a hantavirus strain that seems to be unique to North America. This new strain attacks the lung and causes a disease called Adult Respiratory Distress Syndrome (ARDS).

How is this virus transmitted?

The virus is thought to be mainly carried by a common rodent, the deer mouse (*Peromyscus maniculatus*). This mouse is native to most of the U.S. including Massachusetts. Infected rodents shed live virus in saliva, feces, and urine. Humans are infected when they inhale dust that contains dried rodent urine or feces. Transmission may also occur when dried materials contaminated by rodent feces are disturbed and directly introduced into broken skin or the eyes, nose, or mouth.

Insect bites and household pets are not thought to play a role in hantavirus transmission. Squirrels, birds, hamsters, and rabbits are not known carriers of the hantavirus. There is no evidence of person-to-person transmission of the hantavirus.

THE DISEASE

What are the symptoms and how long do they take to develop?

Typical cases of ARDS begin with flu-like symptoms: a high fever, muscle aches, cough, and headache. After a few days respiratory problems quickly worsen. The lungs fill with fluid, leading to severe respiratory problems. Symptoms normally develop within two weeks, but may range from a few days up to six weeks.

Is there any treatment? Is the disease always fatal?

Treatment requires hospitalization and intensive medical care. The antiviral drug ribavirin is being tested for use in cases of ARDS. Of the 60 cases diagnosed in the U.S. since May 1993, 38 were fatal. However, there may have been many mild cases that were never identified.

Are children, pregnant women, and the elderly at higher risk than the general population?

The ARDS hantavirus illness is so rare that investigators have not been able to identify any person or group that is more susceptible to the hantavirus. In the 1993 outbreak, an equal number of men and women were infected. Those infected ranged from 12 to 69 years of age. Contact with rodents and their urine and feces appears to be the most important factor in determining who becomes ill with hantavirus.

Where has the disease been found in the U.S.?

Confirmed cases have now been reported in 16 different states. Most of the cases occurred west of the Mississippi River; however, a few cases have also occurred east of the Mississippi River, including a recent case in Rhode Island. Several suspect cases of ARDS have been investigated in Massachusetts but all tests have proved to be negative for hantavirus.

RODENTS AND PREVENTION What is the best way to prevent exposure to hantavirus?

Avoid contact with rodents or their feces, urine, or saliva. Since rodents are the primary means of transmitting these viruses, eliminating contact with them is one of the best ways to avoid infection.

Are deer mice the only animals that carry the disease, and how do I tell deer mice from other mice?

Deer mice are the most abundant, widely distributed, and probably the most common carrier of the virus. But evidence has been found of the virus spilling over into other species. For instance, the eastern white-footed mouse, a close cousin of the deer mouse, has shown signs of infection. It is difficult to properly identify mice. All rodents should be avoided.

What do I do about a house or building with rodent droppings in it?

Ideally, dwellings with evidence of severe infestation (e.g., substantial collection of rodent droppings or dead animals present) should be aired out before they are occupied. If you live in a building where rodents are a problem, the best protection against possible infection is to keep rodent droppings from drying out and flying around as dust. To reduce dust in the air, rodent debris from heavily infected areas should be thoroughly wetted with a household disinfectant solution (1 1/2 cups of bleach per gallon of water - use an old spray bottle or dishwashing fluid bottle.) Debris should then be WIPED UP and placed in double plastic bags with any cleanup materials such as paper towels, etc. Discard all materials in a sealed garbage can. Gloves, dust mist masks, long-sleeved clothing, and protective eyewear may help prevent personal exposure.

DO NOT vacuum or sweep - this will create dust in the air. Areas with light rodent infestation (evident from the presence of feces in closets, cabinets, and/or on floors, or from evidence that rodents have been gnawing at food) should be aired out for at least 30 minutes by opening windows and doors. Ideally, airing should occur while the building is unoccupied. A lighter disinfectant solution of 3 tablespoons of bleach in one gallon of water may be used in dwellings with light rodent infestation. Keep children and pets away from the area until it has been disinfected and cleaned completely.

What do I do if I find a dead rodent in my house or building?

Dead animals should be soaked in disinfectant (e.g., the diluted bleach solution or phenol-based cleaning solution) and buried or disposed of as directed by local health officials.

Should I set out traps to catch the mice?

Yes, but be careful. Snap traps (not cage or sticky traps) can be used, but avoid direct contact with the animal and its droppings. Follow the precautions described above. Traps should be disinfected following use or disposed of with the dead animal. After eliminating rodents from a building, the conditions that attracted them (e.g., food sources, overstuffed furniture, etc.) should be removed.

Will the "fume bombs" sold over-the-counter kill the virus?

Probably not. A liquid disinfectant, such as the diluted household bleach solution described above, should be used to inactivate the hantavirus.

How can I prevent exposure to rodents?

The best way to prevent exposure to rodents in your home or workplace is to rodent-proof buildings by (1) sealing all openings greater than 1/4 inch, (2) reducing rodent nesting sites and food sources within 100 feet of your home by clearing away trash and dense shrubbery, and (3) storing all food (including pet food and water) and garbage in tightly sealed containers.

Where can you learn more?

- For more information about rodent-proofing your home or business, contact an exterminator or pest control service (see your local telephone book).
- For more information about hantavirus, contact your local board of health or the Massachusetts Department of Public Health, Division of Epidemiology and Immunization at (617) 983-6800.
- For more information about your personal health, contact your doctor.

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